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(FILE 'USPAT' ENTERED AT 15:33:32 ON 24 FEB 1999)  
L1 44 S (POLYSACCHARIDE FIBRE#) OR (POLYSACCHARIDE FIBER#)  
L2 21 S L1 AND (ALCOHOL OR KETONE)  
L3 9 S L2 AND (CROSSLINK? OR (CROSS LINK?))  
L4 625 S POLYSACCHARIDE# AND (FIBER# OR FIBRE#) AND (ORGANIC SOLV  
ENT  
L5 6 S L1 AND (FIBER/TI OR FIBRE/TI)  
L6 4 S L4 AND (FIBER/TI OR FIBRE/TI)  
L7 20 S L4 AND POLYSACCHARIDE/TI  
L8 0 S L7 AND (POLYVINYLAMINE OR POLYBRENE)  
L9 1 S L7 AND POLYELECTROLYTE#

=> d 19 1

1. 5,104,674, Apr. 14, 1992, Microfragmented ionic  
**polysaccharide**/protein complex dispersions; Wehn-Sherng Chen, et al.,  
426/573, 496, 565, 575, 576, 577, 589, 602, 610, 611, 613, 653, 656, 657,  
658 [IMAGE AVAILABLE]

=> d 17 1-20 cit ab

1. 5,723,601, Mar. 3, 1998, Super porous **polysaccharide** gels; Per  
Olof Larsson, 536/103; 73/19.02; 210/635, 649; 536/112, 114, 123.1, 124  
[IMAGE AVAILABLE]

US PAT NO: 5,723,601 [IMAGE AVAILABLE]

L7: 1 of 20

ABSTRACT:

Porous material of a **polysaccharide** and a method for preparations of such a material, wherein a water-based solution of the **polysaccharide** is mixed, with controlled stirring, with an essentially water-immiscible organic phase to form an emulsion, which when allowed to solidify, just before or during the gelling process, forms a network of two continuous phases, an aqueous **polysaccharide** phase and a flow-pore-forming organic phase, resulting in a material with two types of pores: small diameter diffusion pores and large diameter flow through pores.

2. 5,658,592, Aug. 19, 1997, Medical **crosslinked** polymer gel of carboxylic **polysaccharide** and diaminoalkane; Masao Tanihara, et al., 424/488; 514/944; 516/102 [IMAGE AVAILABLE]

US PAT NO: 5,658,592 [IMAGE AVAILABLE]

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ABSTRACT:

A water swelling polymer gel produced by covalently **crosslinking** a **polysaccharide** having a carboxyl group within the molecule with a diaminoalkane derivative as the **crosslinking** reagent. The medical polymer gel is useful as the structural component of wound dressings, adhesives for biological tissues, adhesion preventing agents, bone reinforcing agents, and drug releasing base materials. Wound dressings comprising the structural material of the water swelling polymer gel of the present invention, can be applied to a patient with wound, burn, and

decubitus to promote the healing of the wounds of the patient.

3. 5,549,908, Aug. 27, 1996, Hydrolytically labile microspheres of polysaccharide crosslinked with cyanogen halide and their application in wound dressings; Daniel J. Smith, et al., 424/444, 445, 499 [IMAGE AVAILABLE]

US PAT NO: 5,549,908 [IMAGE AVAILABLE]

L7: 3 of 20

ABSTRACT:

A water swellable and hydrolytically labile (and therefore potentially biodegradable) non-toxic crosslinked polysaccharide in microsphere or bead form. The crosslinked polysaccharide comprises polysaccharide chains and crosslinking groups which are imidocarbonate groups, carbonate groups or a mixture thereof. The microspheres are predominantly in the range of about 1 micron to about 100 microns in diameter, preferably about 2-50 microns. The crosslinked polysaccharide polymer, which is preferably a crosslinked dextran, is formed by treating a water soluble non-crosslinked polysaccharide with a cyanogen halide (preferably cyanogen bromide) in an aqueous alkaline medium which is the disperse phase of a water-in-oil dispersion. The microspheres are useful in the treatment of wounds, in particular as an absorptive agent for wound exudates. The microspheres may be formed into a wound dressing which includes a blend of the microspheres and a hydrophobic adhesive matrix material on a waterproof backing sheet.

4. 5,547,848, Aug. 20, 1996, Immunoassay element containing a pulverized water-insoluble polysaccharide and process for immunoassay; Hiroshi Shinoki, et al., 435/7.9; 422/56, 60, 68.1, 101; 435/7.92, 18, 22, 188; 436/169, 514, 530 [IMAGE AVAILABLE]

US PAT NO: 5,547,848 [IMAGE AVAILABLE]

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ABSTRACT:

An immunoassay element for quantitatively analyzing a ligand by determining the change in enzymatic activity. When the ligand is a low molecular weight antigen, competitive reactions between the ligand, enzyme-labelled antibody and conjugate of the antigen and high molecular weight compound are utilized. When the ligand is a macromolecular antigen, a reaction between the ligand and an enzyme-labelled antibody is utilized directly. The immunoassay element comprises a substrate layer containing a non-diffusible substrate which forms a diffusible material in the presence of the enzyme, and a reagent layer for detecting the thus formed diffusible material. The non-diffusible substrate is composed of a pulverized insoluble polysaccharide. The reagent layer may further contain a fragmenting enzyme for further fragmenting the non-diffusible material. Also provided are processes for quantitatively analyzing both of low molecular weight and macromolecular antigens contained in any samples by the use of the immunoassay elements of the invention.

5. 5,541,255, Jul. 30, 1996, Cross-linked linear polysaccharide polymers as gels for electrophoresis; Branko Kozulic, 525/54.3; 536/84, 87, 123.1 [IMAGE AVAILABLE]

US PAT NO: 5,541,255 [IMAGE AVAILABLE]

L7: 5 of 20

ABSTRACT:

A bed of water insoluble, transparent, cross-linked gel, suitable for use in electrophoresis, is formed by dissolving a polysaccharide, including at least one linear polysaccharide such as agarose or hydroxyethyl cellulose, in a suitable solvent, such as water; adding a cross-linking agent, which is not charged nor becomes charged upon contact with water in a pH range of 2 to 11, to the solution; and incubating this mixture in a quiescent state to substantially

simultaneously react the **polysaccharide** and the **cross-linking** agent and to gel the reaction product into a bed. The **polysaccharide** is at least one linear **polysaccharides**, but that linear **polysaccharide** may also be admixed with other linear **polysaccharides** and/or at least one non-linear **polysaccharide**. Synthetic organic polymers may also be admixed in the **cross-linking** reaction mixture. The **polysaccharide**, and/or other polymers in the **cross-linking** reaction mixture may be charged but are preferably uncharged, but if charged, the charge must be low enough so that the charge of the resulting gel, if any, will not interfere with the use of the gel to support an electrophoresis process. When the linear **polysaccharide** is agarose, the gel has improved elasticity, transparency, and, when the gelled **cross-linked** product is used to support electrophoresis, improved resolution of small DNA molecules as compared to the results achieved by using an agarose polymer which has not been **cross-linked** according to this invention.

6. 5,371,208, Dec. 6, 1994, Preparation of **cross-linked** linear **polysaccharide** polymers as gels for electrophoresis; Branko Kozulic, 536/102; 204/403, 470; 530/417; 536/1.11, 115, 120, 124 [IMAGE AVAILABLE]

US PAT NO: 5,371,208 [IMAGE AVAILABLE]

L7: 6 of 20

ABSTRACT:

A bed of transparent, water insoluble, charge-free **crosslinked** gel which is suitable for use in electrophoresis is prepared. The gel is formed by dissolving a linear **polysaccharide**, such as agarose, in a suitable solvent, such as water. This dissolution may be accomplished with agitation. A suitable **cross linking** agent, which is not itself charged, nor does it become charged upon contact with water, at a pH of 2 to 12, is then added to the solution, possibly with agitation in the order to get thorough mixing of the linear **polysaccharide** and the **cross linking** agent. This mixture is then allowed to incubate and react in a quiescent state to substantially simultaneously gel and **crosslink** to form the desired **cross linked** gel bed. Preferred **cross-linking** agents are bis-epoxides, halo-epoxides, bis-haloalkanes, bis-halo-alcohols, alkanediol-bis-alkyl sulfonates, alkanediol-bis-aryl sulfonates or divinylsulfone. The liner **polysaccharide** maybe mixed with a synthetic polymer such as polyvinyl alcohol.

7. 5,230,853, Jul. 27, 1993, Process for making **polysaccharide fibers**; George T. Colegrove, et al., 264/186, 211.11 [IMAGE AVAILABLE]

US PAT NO: 5,230,853 [IMAGE AVAILABLE]

L7: 7 of 20

ABSTRACT:

**Polysaccharide fibers** are produced by hot extrusion of a gelling **polysaccharide** into air or a gelling salt bath. Optionally, other **polysaccharides**, including non-gelling types, may be co-extruded with the gelling **polysaccharide**. The **fibers** are useful for the production of wound dressings and catamenial devices, and many other devices.

8. 5,104,674, Apr. 14, 1992, Microfragmented ionic **polysaccharide/protein complex** dispersions; Wehn-Sherng Chen, et al., 426/573, 496, 565, 575, 576, 577, 589, 602, 610, 611, 613, 653, 656, 657, 658 [IMAGE AVAILABLE]

US PAT NO: 5,104,674 [IMAGE AVAILABLE]

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ABSTRACT:

Microfragmented ionic **polysaccharide**/protein complex dispersions which are suitable for use as fat substitute compositions in food products such as ice cream, salad dressings, dips, spreads and sauces and methods for preparing such dispersions and food products.

9. 4,996,150, Feb. 26, 1991, Biocatalyst immobilization in a gel of anionic **polysaccharide** and cationic polymer; John J. Joung, et al., 435/161, 177, 178, 179, 180 [IMAGE AVAILABLE]

US PAT NO: 4,996,150 [IMAGE AVAILABLE]

L7: 9 of 20

ABSTRACT:

An immobilized biocatalyst suitable for fermenting to produce ethanol is prepared by mixing a biocatalyst such as a microorganism with a reaction product of a homogeneous dispersion of an anionic **polysaccharide** such as alginate and a cationic polymer such as polyethyleneimine, and combining the resultant dispersion with an oil phase to form beads. A surfactant may be present when combining the dispersion with the oil phase. A water soluble-oil insoluble curing powder including a salt of a multivalent cation such as calcium chloride is mixed with the beads in the oil phase to gel and dehydrate the beads and to prevent the beads from adhering to one another until individual bead surfaces become hardened.

10. 4,983,748, Jan. 8, 1991, Acetals useful for the preparation of **polysaccharide** derivatives; John J. Tsai, et al., 549/551, 553, 554, 555; 564/209, 291, 292; 568/596 [IMAGE AVAILABLE]

US PAT NO: 4,983,748 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the formula  $\text{Sacch}-\text{O}-\text{CH}.\sub{2}$   
 $-\text{CH}.\text{dbd}.\text{CH}-\text{CHO}$ ,  $\text{Saach}-\text{O}-\text{CH}.\sub{2}$   $-\text{C}.\text{tbd}.\text{C}-\text{CHO}$ , ##STR1## starch, cellulose, and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. In the formulas, n is 1-3; R.<sup>11</sup> and R.<sup>12</sup> are independently an alkyl, aryl, aralkyl, or alkaryl group when n is 1, R.<sup>11</sup> or R.<sup>12</sup> is one of the groups when n is 2, or R.<sup>11</sup> and R.<sup>12</sup> are not present when n is 3; R.<sup>13</sup> is an alkyl group, optionally containing an ether linkage, or an aralkyl group; R.<sup>14</sup> and R.<sup>15</sup> are individually a hydrogen or a methyl group; R.<sup>16</sup>, R.<sup>17</sup>, and R.<sup>18</sup> are individually an alkyl group; Y.<sup>-</sup> is an anion; Z is an organic group capable of reacting with the **polysaccharide** base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R.<sup>19</sup>, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

11. 4,804,769, Feb. 14, 1989, Acetals useful for the preparation of **polysaccharide** derivatives; Daniel B. Solarek, et al., 549/374 [IMAGE AVAILABLE]

US PAT NO: 4,804,769 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the formula  $\text{Sacch}-\text{O}-\text{CH}.\sub{2}$   
 $-\text{CH}.\text{dbd}.\text{CH}-\text{CHO}$ ,  $\text{Sacch}-\text{O}-\text{CH}.\sub{2}$   $-\text{C}.\text{tbd}.\text{C}-\text{CHO}$ , ##STR1## such as starch, cellulose, and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the general

structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. In the formulas, n is 1-3; R.<sup>11</sup> and R.<sup>12</sup> are independently an alkyl, aryl, aralkyl, or alkaryl group when n is 1, R.<sup>11</sup> or R.<sup>12</sup> is one of the groups when n is 2, or R.<sup>11</sup> and R.<sup>12</sup> are not present when n is 3; R.<sup>13</sup> is an alkyl group, optionally containing an ether linkage, or an aralkyl group; R.<sup>14</sup> and R.<sup>15</sup> are individually a hydrogen or a methyl group; R.<sup>16</sup>, R.<sup>17</sup>, and R.<sup>18</sup> are individually an alkyl group; Y.<sup>-</sup> is an anion; Z is an organic group capable of reacting with the **polysaccharide** base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R.<sup>19</sup>, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

12. 4,801,699, Jan. 31, 1989, **Polysaccharide** esters containing acetal and aldehyde groups; Patrick G. Jobe, et al., 536/59, 32, 33, 48, 52, 102, 107, 114 [IMAGE AVAILABLE]

US PAT NO: 4,801,699 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** esters containing aldehyde and acetal groups having the structural formulas ##STR1## are prepared by reacting a **polysaccharide**, such as a starch, gum, or cellulose, with an acetal-containing reagent which contains a functional group reactive with the hydroxyl groups of the **polysaccharide**; Z is a multivalent organic group; A and A' are independently a lower alkyl or together form at least a 5-membered cyclic acetal; x is at least 1; and y is at least 1. When x is > 1 the esters are crosslinked. Typical reagents for introducing the acetal group include 3,3-diethoxypropionyl guanidine (itself a novel compound) and 4-(methylaminoacetaldehyde dimethyl acetal)-4-oxo-butanoic acid). The derivatives are useful in conventional applications such as coatings, adhesives, paper additives and foodstuffs.

13. 4,788,280, Nov. 29, 1988, **Polysaccharide** derivatives containing aldehyde groups on an aromatic ring, their preparation from the corresponding acetals and use in paper; Robert L. Billmers, et al., 536/104; 162/158; 536/4.1, 43, 44, 45, 50, 52, 84, 111, 114 [IMAGE AVAILABLE]

US PAT NO: 4,788,280 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the formula ##STR1## or Sacch--O--CH<sub>2</sub>--Ar--CHO (II) such as starch, cellulose, and gum aldehydes, are useful as paper additives for imparting strength and as the granular or gelatinized portion of a corrugating adhesive. Those having formula I are prepared by a nonoxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. In the formula Ar is an aryl group, optionally containing an ether linkage, or an alkaryl group and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal. The **polysaccharide** aldehydes are crosslinked by the addition of selected polyfunctional crosslinkers such as an aliphatic primary polyamine or polyketone.

14. 4,774,093, Sep. 27, 1988, **Polysaccharide** compositions, preparation and uses; Richard B. Provonchee, et al., 424/493; 106/162.1; 351/160H, 160R; 424/492, 496, 500; 516/107; 536/4.1, 115, 123, 123.12, 124 [IMAGE AVAILABLE]

US PAT NO: 4,774,093 [IMAGE AVAILABLE]

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ABSTRACT:

Novel beta-1,3-glucan polysaccharide gels characterized by (a) coherent, uniform, non-particulate structure, and (b) substantially uniform pH throughout. The gels are prepared by dissolving a beta-1,3-glucan polysaccharide in an aqueous alkaline medium at a temperature of about 55.degree. C. or below and while maintaining the solution at a temperature of at least 50.degree. C., adjusting the pH to 10.5 or lower, followed by cooling below about 40.degree. C. or heating above 50.degree. C. The gels formed by cooling are reversible whereas the gels formed by heating are thermally irreversible. The gels are useful for supporting, separating, transforming or treating biological materials, as carriers for pharmaceuticals, as coatings for biological materials, in food products, and can be shaped to form disposable contact lenses.

15. 4,749,800, Jun. 7, 1988, **Polysaccharide esters containing acetal and aldehyde groups**; Patrick G. Jobe, et al., 549/452, 347, 373, 375; 564/202 [IMAGE AVAILABLE]

US PAT NO: 4,749,800 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide esters containing aldehyde and acetal groups having the structural formulas ##STR1##** are prepared by reacting a polysaccharide, such as a starch, gum, or cellulose, with an acetal-containing reagent which contains a functional group reactive with the hydroxyl groups of the polysaccharide; Z is a multivalent organic group: A and A' are independently a lower alkyl or together form at least a 5-membered cyclic acetal; x is at least 1; and y is at least 1. When x is >1 the esters are crosslinked. Typical reagents for introducing the acetal group include 3,3-diethoxypropionyl guanidine (itself a novel compound) and 4-(methylaminoacetaldehyde dimethyl acetal)-4-oxo-butanoic acid). The derivatives are useful in conventional applications such as coatings, adhesives, paper additives and foodstuffs.

16. 4,741,804, May 3, 1988, **Polysaccharide derivatives containing aldehyde groups, their preparation from the corresponding acetals and use as paper additives**; Daniel B. Solarek, et al., 162/175, 177, 178 [IMAGE AVAILABLE]

US PAT NO: 4,741,804 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide aldehydes having the formula ##STR1##** starch, cellulose, and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the polysaccharide base, in the presence of alkali, with a derivatizing acetal reagent having the general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. In the formula, n is 1-3; R.<sup>11</sup> and R.<sup>12</sup> are independently an alkyl, aryl, aralkyl, or alkaryl group when n is 1, R.<sup>11</sup> or R.<sup>12</sup> is one of the groups when n is 2, or R.<sup>11</sup> and R.<sup>12</sup> are not present when n is 3; R.<sup>13</sup> is an alkyl group, optionally containing an ether linkage, or an aryl, aralkyl, or alkaryl group; R.<sup>14</sup> and R.<sup>15</sup> are individually a hydrogen or a methyl group; R.<sup>16</sup>, R.<sup>17</sup>, and R.<sup>18</sup> are individually an alkyl group; Y.<sup>-</sup> is an anion; Z is an organic group capable of reacting with the polysaccharide base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R.<sup>19</sup>, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

17. 4,731,162, Mar. 15, 1988, **Polysaccharide derivatives containing aldehyde groups for use as paper additives**; Daniel B. Solarek, et al.,

US PAT NO: 4,731,162 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the general structure ##STR1## such as starch, cellulose and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. R is (CH<sub>sub.2</sub>).sub.n or a divalent aromatic group and n is 0 or greater; R<sup>1</sup>, R<sup>6</sup>, and R<sup>7</sup> are hydrogen or an organic group; R<sup>2</sup>, R<sup>5</sup>, and R<sup>8</sup> are (CH<sub>sub.2</sub>).sub.m with m being 1-6; R<sup>3</sup> and R<sup>4</sup> are hydrogen or a lower alkyl; Y is an anion; Z is an organic group capable of reacting with the **polysaccharide** base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R<sup>11</sup>, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

18. 4,703,116, Oct. 27, 1987, **Polysaccharide** derivatives containing aldehyde groups, their preparation from the corresponding acetals and use as paper additives; Daniel B. Solarek, et al., 536/104; 162/158; 536/30, 43, 45, 52, 56, 84, 111, 114; 549/430; 568/590 [IMAGE AVAILABLE]

US PAT NO: 4,703,116 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the formula Sacch--O--CH<sub>sub.2</sub>--CH.dbd.CH--CHO, ##STR1## such as starch, cellulose, and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. In the formulas, n is 1-3; R<sup>11</sup> and R<sup>12</sup> are independently an alkyl, aryl, aralkyl, or alkaryl group when n is 1, R<sup>11</sup> or R<sup>12</sup> is one of the groups when n is 2, or R<sup>11</sup> and R<sup>12</sup> are not present when n is 3; R<sup>13</sup> is an alkyl group, optionally containing an ether linkage, or an aralkyl group; R<sup>14</sup> and R<sup>15</sup> are individually a hydrogen or a methyl group; R<sup>16</sup>, R<sup>17</sup>, and R<sup>18</sup> are individually an alkyl group; Y- is an anion; Z is an organic group capable of reacting with the **polysaccharide** base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R<sup>19</sup>, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

19. 4,675,394, Jun. 23, 1987, **Polysaccharide** derivatives containing aldehyde groups, their preparation from the corresponding acetals and use as paper additives; Daniel B. Solarek, et al., 536/43; 162/158; 536/4.1, 44, 45, 50, 52, 84, 111, 114 [IMAGE AVAILABLE]

US PAT NO: 4,675,394 [IMAGE AVAILABLE]

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ABSTRACT:

**Polysaccharide** aldehydes having the general structure ##STR1## such as starch, cellulose and gum aldehydes, are useful for imparting wet, dry, or temporary wet strength to paper. They are prepared by a non-oxidative method which involves reacting the **polysaccharide** base, in the presence of alkali, with a derivatizing acetal reagent having the

general structure ##STR2## and then hydrolyzing the acetal by adjusting the pH to less than 7, preferably 2-4. R is (CH<sub>2</sub>.sub.2).sub.n or a divalent aromatic group and n is 0 or greater; R.sup.1, R.sup.6, and R.sup.7 are hydrogen or an organic group; R.sup.2, R.sup.5, and R.sup.8 are (CH<sub>2</sub>.sub.2).sub.m with m being 1-6; R.sup.3 and R.sup.4 are hydrogen or a lower alkyl; Y is an anion; Z is an organic group capable of reacting with the **polysaccharide** base to form an ether derivative and selected from the group consisting of an epoxide, ethylenically unsaturated group, halohydrin, and halogen; R.sup.11, if present, is a divalent organic group containing no reactive substituents; and A and A' are lower alkyls or together form at least a 5-membered cyclic acetal.

20. 4,614,794, Sep. 30, 1986, Protein/**polysaccharide** complexes; Ian A. Easton, et al., 530/356; 426/656, 657, 658; 530/353 [IMAGE AVAILABLE]

US PAT NO: 4,614,794 [IMAGE AVAILABLE]

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ABSTRACT:

Complexes of polyanionic plant **polysaccharides** with biodegradable proteins, or proteolytic degradation products thereof, are useful in the formation of wound dressings and surgical implants, such as sutures, blood vessel grafts, and artificial organs. The biodegradable protein is preferably collagen, and the **polysaccharide** is preferably sodium alginate. The complexes are preferably formed by combining the protein and the **polysaccharide** at a pH which is no higher than the isoelectric point of the protein. The complexes may be **crosslinked**, such as by dehydrothermal **crosslinking** or by the use of chemical **crosslinking** agents such as aldehydes or carbodiimides. Multivalent cations may also be incorporated in the complex in order to give added strength.

=> 16 1-4 cit ab

1. 5,843,202, Dec. 1, 1998, Apparatus for forming migration free glass **fiber** packages; Martin C. Flautt, et al., 65/532, 453, 507, 530 [IMAGE AVAILABLE]

US PAT NO: 5,843,202 [IMAGE AVAILABLE]

L6: 1 of 4

ABSTRACT:

Energy efficient apparatus for forming migration free glass **fiber** packages composed of **fibers** bearing substantially uniform coatings of size composition. Heated air from around the **fiber** forming bushing is drawn into a chamber through which the glass **fibers** pass to cause the water or solvent in the applied size to be evaporated. The flow of heated air through the chamber is regulated so as to obtain substantially uniform size application to the **fibers**.

2. 5,516,524, May 14, 1996, Laxative compositions containing bulk **fiber**; Theresa M. Kais, et al., 424/439, 78.01, 195.1, 451, 464, 489; 514/892 [IMAGE AVAILABLE]

US PAT NO: 5,516,524 [IMAGE AVAILABLE]

L6: 2 of 4

ABSTRACT:

An ingestible laxative composition comprising specified amounts of dioctyl sulfosuccinate and bulk **fiber** selected from the group consisting of psyllium, methylcellulose, polycarbophil, calcium polycarbophil, bran, malt soup extract, karaya, guar gum, and mixtures thereof, preferably in single dose form, is described.

3. 4,931,524, Jun. 5, 1990, Surface-treatment of synthetic or semi-synthetic **fiber** textile materials; Kazuo Sato, et al., 527/301, 302; 528/45, 59, 67 [IMAGE AVAILABLE]

**ABSTRACT:**

Synthetic or semi-synthetic **fiber** textile materials are coated with an aqueous solution or dispersion of a thermally reactive saccharide-urethane composition. The saccharide/urethane composition consists of a saccharide/polyisocyanate adduct having at least one blocked isocyanate group, a saccharide/urethane ether having at least one blocked isocyanate group, or mixture of a saccharide material and a thermally reactive **crosslinker** thereof.

4. 4,545,919, Oct. 8, 1985, Detergent composition for washing off dyeings obtained with **fibre**-reactive dyes and washing process comprising the use thereof; Heinz Abel, 8/137, 102, 441; 510/337, 341, 342, 343, 467 [IMAGE AVAILABLE]

**ABSTRACT:**

The invention relates to an aqueous detergent composition comprising (A) an alkali aluminum silicate, (B) an anionic surfactant, (C) an aliphatic monoalcohol of 5 to 18 carbon atoms or a C.<sub>sub.8</sub>-C.<sub>sub.22</sub> fatty acid/alkanolamine reaction product or an adduct of said compounds with an alkylene oxide, or an adduct of a C.<sub>sub.8</sub>-C.<sub>sub.22</sub> fatty acid, a trihydric to hexahydric aliphatic alcohol or an unsubstituted or substituted phenol with an alkylene oxide, and (D) an aqueous solution or dispersion of a polymer which contains carboxyl groups.

This detergent composition is used for washing off prints or dyeings produced with reactive dyes on cellulosic **fibre** materials.

=> d 13 1-9 cit ab

1. 5,851,461, Dec. 22, 1998, Method of producing polysaccharide foams; George Bakis, et al., 264/50; 156/78, 305, 306.3; 428/316.6 [IMAGE AVAILABLE]

**ABSTRACT:**

Disclosed is a method of producing polysaccharide foams and foams produced by the method. The polysaccharide foams are formed from a wet condition and are convection dried with a flow of warm or hot air. Such foams exhibit improvements over foams dried under ambient conditions. The present invention also discloses the formation of multi-ply foam layers. At least two sheets of foam layers are layered together and laminated either mechanically or chemically to produce a composite structure.

2. 5,840,777, Nov. 24, 1998, Method of producing polysaccharide foams; Dana Burton Eagles, et al., 521/82, 84.1, 92, 134, 138, 140 [IMAGE AVAILABLE]

**ABSTRACT:**

A method of producing a polysaccharide foam is provided. The method comprises mechanically foaming an aqueous solution of a soluble polysaccharide and thereafter reacting the foam to produce stable foam. Typically, the soluble polysaccharide is an alginate, hyaluronate, carrageenans, chitosan or starch.

3. 5,735,902, Apr. 7, 1998, Hand implant device; Shu-Tung Li, et al.,  
623/18 [IMAGE AVAILABLE]

US PAT NO: 5,735,902 [IMAGE AVAILABLE]

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**ABSTRACT:**

A hand augmentation device to be used to replace diseased tissue of a hand bone. The device includes a dry matrix, which contains at least 75% by weight biocompatible and bioresorbable biopolymeric fibers such as collagen fibers or **polysaccharide fibers**, and has a height of 2 mm to 4 cm, a width of 0.5 cm to 6 cm, a depth of 0.5 cm to 6 cm, a density of 0.1 g/cm.<sup>3</sup> to 0.5 g/cm.<sup>3</sup>, and a pore size of 50 .mu.m to 300 .mu.m.

4. 5,688,923, Nov. 18, 1997, Pectin fibers; Timothy C. Gerrish, et al.,  
536/2; 127/29; 602/41, 42, 45, 48, 52 [IMAGE AVAILABLE]

US PAT NO: 5,688,923 [IMAGE AVAILABLE]

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**ABSTRACT:**

A polyvalent cation **crosslinked** pectin fiber composition is composed of a calcium sensitive low methoxyl pectin with a degree of esterification (DE) of less than 15% or calcium sensitive amidated pectin having a DE of less than 50% where the pectin is polyvalent cation **crosslinkable** and has an average molecular weight (MW) having an upper limit of 200,000 and a lower limit of 5000. This pectin is useful in making wound dressings for topical applications.

5. 5,603,936, Feb. 18, 1997, Process for removing light absorbing compounds from epidermal plant cells; Woodrow C. Monte, 424/195.1, 94.6, 94.61, 94.62, 94.63, 94.64, 94.65, 94.66; 514/456 [IMAGE AVAILABLE]

US PAT NO: 5,603,936 [IMAGE AVAILABLE]

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**ABSTRACT:**

A process is provided for harvesting light absorbing compounds from the epidermal cells of a plant. The plant is subjected to artificial light having wavelengths in the range of 260 to 400 nm. The plant is ground to form a slurry and an enzyme is added to the slurry to breach the walls of cells in the plant to free the light absorbing compounds. A solvent added to the slurry extracts the light absorbing chemicals.

6. 5,536,778, Jul. 16, 1996, Pressure sensitive adhesive comprising cellulose; Karl W. Kreckel, et al., 524/733, 13, 35, 47, 55, 56, 58, 734 [IMAGE AVAILABLE]

US PAT NO: 5,536,778 [IMAGE AVAILABLE]

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**ABSTRACT:**

A pressure-sensitive adhesive is obtainable by a process comprising polymerizing an ester of acrylic or methacrylic acid having a non-tertiary **alcohol** comprising 4 to 12 carbon atoms in the alkyl chain (component A) in the presence of at least one kind of a naturally occurring polysaccharide except hydrolyzed starch, cellulose ethers and cellulose esters (component B), radical chain initiators (component C).

The pressure sensitive articles manufactured from the pressure sensitive adhesive have improved properties. In particular, the articles are repositionable and the adhesion under humid conditions is improved when cellulose powder is used as component B.

7. 5,230,853, Jul. 27, 1993, Process for making **polysaccharide fibers**; George T. Colegrove, et al., 264/186, 211.11 [IMAGE AVAILABLE]

**ABSTRACT:**

**Polysaccharide fibers** are produced by hot extrusion of a gelling polysaccharide into air or a gelling salt bath. Optionally, other polysaccharides, including non-gelling types, may be co-extruded with the gelling polysaccharide. The fibers are useful for the production of wound dressings and catamenial devices, and many other devices.

8. 4,360,013, Nov. 23, 1982, Polymeric acid contraceptive devices; Thomas H. Barrows, 128/832; 424/DIG.14; 604/515 [IMAGE AVAILABLE]

US PAT NO: 4,360,013 [IMAGE AVAILABLE]

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**ABSTRACT:**

A disposable non-woven sponge vaginal contraceptive device is made of alginic acid or related polysaccharides bearing carboxylic acid functionality and a method of making same is disclosed.

9. 4,017,474, Apr. 12, 1977, Polyurethane intermediates and products and methods of producing same from lignin; Wolfgang Gerhard Glasser, et al., 530/502; 521/172; 525/534; 527/400; 528/905 [IMAGE AVAILABLE]

US PAT NO: 4,017,474 [IMAGE AVAILABLE]

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**ABSTRACT:**

Polycarboxy-oxyalkylene polyester-ether polyol intermediates useful in the production of polyurethane products and methods of making the intermediates and polyurethane products are described. The polyol intermediates are made from lignin by reacting lignin with maleic anhydride, substituted maleic anhydride, or mixtures thereof to form carboxylated lignin maleic anhydride copolymers. These copolymers are then reacted with an oxyalkylating medium with or without prior hydrolysis to form the polyol intermediates. These polyester-ether polyol intermediates are then reacted with an isocyanate medium having an isocyanate with at least 2 NCO groups per molecule to produce polyurethane products with or without simultaneous foaming.